



Transmission of Financial Crisis: Evidence of Sub-Sahara Africa (SSA)

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ABSTRACT

The world was stroke by a chain of financial crisis between 2006 and 2012. In 2007, began the subprime crisis which gave way to European debt crisis in 2010. As the world tried to recover in 2009, this European debt crisis and Greece sovereign debt (2011) set in. The study investigates through descriptive techniques, correlation and regression, evidence and openings through which these crisis reached and how it affected Sub-Sahara Africa. Using three indicators; GDP growth rate, export/GDP ratio and inflation, we found statistically evidence of the financial tumor in this continent. With numerous indicators of financial crisis we could limit ourselves to three because the data source provided us with more detail information. We suggested that African government multinational and local firms should have expert that can predict and mitigate the impact of a financial crisis.

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1. Introduction

The global today enjoys more friendship, trading and foreign direct investment among nations compare to previous centuries. Formation of economic blocks or economic integration and globalization of financial system is the major characteristic of the 20th and 21st century. As the world turns into a global village, financials shocks are easily transmitted from a country of origin to other regions/parts of the world. This financial waves becomes more severe when an advance economy suffer from a financial system break down. Globalization or economic relationship began among economies after industrial revolution. In search of markets and raw material for industrial production. Industrialized economy sought friendship with one another and with developing countries. This period noticed a rise in trade agreements among countries. This advanced to formation of economic zones like European Union, Economic union of central African state (CEMAC) and many others. Effects (contagion or financial shocks) of a financial or economic crises on one economy can be felt by others. Such financial waves were felt by many industrialized and some developing economy in the 1929 great depression. This began in USA due to stock market crash. It later spread its effects to Europe, other advance and developing economy. This crisis lasted for 4 years and recovery set in 1933 or early 1934. In periods of over performing systems need a force and strategies (monetary, fiscal, investment and production policies) to keep stable. If any of these strategies or policies fails then the boom will face a down turn.

Such subside periods in the world are frequently called financial crisis. However some are cause not by financial sector but by fluctuation in the price of valued commodities and/or general natural resources like petroleum. For example, the 1970s OPEC oil price shock and 2000s energy crisis led to a major world's crisis. For this reason some experts prefer to consider or call it an economic crisis. Notwithstanding most deepen and destructive crisis are usual from financial sector activities. Financial crises may not be direct from financial institutions but can stem from other industry whose activities affect performance of the financial sector.

Before the great depression a number of crises had stroke the world. After this depressed business cycle periods did not end. World Bank recorded about 21 crisis that stroke different world economies within the 20th century. Among this the 1929-1933 was the most severe. 15 years gone in the 21st century, they are already 12 different crisis stroke different part of the

globe. In early 2000s the Dot-com bubble resulted to a recession. 2000s energy crises, Subprime mortgage crisis, United States housing bubble and United States housing market correction, 2008–2012 Icelandic financial crisis, 2008–2010 Irish banking crisis, Russian financial crisis of 2008–2009, Automotive industry crisis of 2008–2010, European sovereign debt crisis, Greek government-debt crisis, 2014 Russian financial crisis, and 2015 Chinese stock market crash followed. Among these aforementioned crises, the subprime crisis (2007–2008) is the most severe. Great depression and its intense effect nature have not affected the planet till the surface of subprime crisis in 2007. As the world seem recovered from 2007–2008 subprime impacts, the European sovereign debt crises (2010) and Greece debt crisis (2010) set in. A number of these crisis that followed subprime seems to have its roots from its severity.

A financial crisis starts in one country (epicenter) and creates waves that transmit its effects to other sections of the globe. Today global financial crisis is the most appellation for such phenomenon because its 21st century effects seem to have a high significant impact on the world. What really indicates or signals a crisis is on the way? Studies have reviewed a number of these indicators ranging from general, sector specific, current account, capital account, financial sector, real sector and global economy class of indicators have been documented. For example, export, FID, M2 to GDP, oil prices, GDP growth and inflation of GDP deflator are basic tools analysts can use to evaluate the present and magnitude of a financial crisis. Unemployment increase in such periods and foreign reserve account falls. It is believed that trade, FDI, currency fluctuations and other financial deals are the dominant openings that channels crisis's waves. We will therefore research and prove descriptively the effects of these chains of 2007–2012 world financial crisis in the sub-Saharan Africa. Review channels through which these crises came to this region and related financial crisis to risk in corporate management and economic stability. The following objectives and questions will pilot the study.

1.1. Objectives

- To show statistically, the effects of the 2007-2012 chain of world's financial crisis on Sub-Sahara Africa.
- To review how financial crisis from USA, Europe and other advance economy reach Sub- Sahara Africa.
- To examine how to predict the coming of a global financial crisis and ways through which governments and corporations can mitigate it effects.

1.2. Research Questions

- Are they statistical evidence of the 2007-2012 chain of world's financial crisis in the Sub-Sahara Africa?
- How 2007-2012 crisis did reached the Sub- Sahara Africa?
- Can governments and firms predict the coming of a financial crisis? What strategies could be used to mitigate financial crisis?

At end of our study readers should be able to have statistical evidence proving transmission of a financial crisis. More to this the channels through which these crisis are transmitted will equal be discus. Management approaches to firms and government in such periods will be suggested.

We organized this paper into 5 key areas. After this introduction section two reviews empirical and theoretical papers on financial crisis. Part three acknowledge data sources and methodology while part four present data, analyze and discus findings. The last conclude and provides some guides.

2. Review of Empirical Literatures

United Nations, (2010c; 2011) recognized a contraction of the world's economy between 2007 and 2012. It acknowledged that this drop was more severe in 2009 following the peak of the subprime crisis in 2008. Statistics show that this contraction was more severe in developing economy (2.4 percent for 2009) than developed countries. GDP growth rate dropped and 52 economies witness a real fall in per capital income. Russia in particular was noted to have been serious affected by this crisis (8% GDP contraction rate). United nation

(2011) equally recognized an output fall of 6.5% drop for Mexico economy. It stated that western Asia was not left out from this global tumor. Fallen general trade volume is the fundamental factor that intensified or magnified the degree to which this crisis stroke the developing world. It was noted that developed countries especially united states of America recorded decline in importation (united nation, 2009a; 2010b). The sum imports of USA, Europe and Japan reduced by almost 40%. This decline could not support stable global/international traded, as result the effect of crisis became more intensified. United nation (2010a) forecast, global trade was supposed to rise by close to 6.5 percent in 2011 and 2012. This figure fall short of recovery 2010 figure of 10.5 percent. The differences is accounted for by the resurface of European debt crises and Greece sovereign debt (2011). EU (2010) crisis did not give way for creeping global economy affect by the subprime crisis to get full stability (united nation, 2011).

After the great depression of 1929 the subprime is recognized the highest severe crises (united nation, 2011b). Its effects were equally transmitted to Sub-Sahara economies. **With** limited contribution and participation in global economy, this region (Sub-Sahara Africa) experienced limited effects in terms of slow economic growth (World Bank, 2010a) compare to others. Eurostat (2011) noticed that unemployment, fallen real GDP, drop in remittance labor were the major indicators of this crisis in Europe. This was more in Eastern Europe (Latvia, Lithuania, and Estonia), Kyrgyzstan, Kazakhstan and Tajikistan. These economies witness GDP dropped in 2009 due to high exposure to USA. (Eurostat, 2011).

3. Data and Research Design

We selected among the mentioned indicators, GDP growth rate, export (converted into export/GDP ratio) and inflation or GDP deflector. The effects of the subprime crisis and the European debt crisis on the continent of Africa (sub-Sahara Africa) will be search using these indicators. Data for 20 sub-Sahara Africa economies plus USA and European Union for 2006-2012 study source from World Bank database (world development indicators). We choose 5 country from each region (central, west, east and southern section of Africa) to constitute the sample of 20 countries. The study will be approach both descriptively and exploratory. Per each economy and each variable we will calculate the rate of change from one year to another for GDP, export/GDP and inflation. This will be follow by calculate percentage decreases or increase for each country in the sample (sample size of 20). It is

noted through reviewed papers that the GDP growth rate falls more in crisis period, export/GDP a measure of the proportion of export that support GDP equally will drop during a tumor and inflation seem to go high in financial crisis. We adopt a wide range of analytical tools in addition to descriptive approach to answer the research questions. Descriptively we find percentage change in GDP, export to GDP and inflation. The up values (+) and down values (-) in the sample of 20 are noted. The second approach is to determine the correlation or sensitivity between each economy and USA or European Union data. In this way we will view degree of these crisis on this region. A zero coefficient implies changes in USA or Europe resulting from crisis does not affect individual countries.

That is, $\delta(\text{gdp g})/\delta(\text{gdp g})\text{USA} = 0$,

Where $\delta(\text{gdp g})$ is derivatives of change in growth rate of country a

$\delta(\text{gdp g})\text{USA}$ is changes in growth rate of growth rate of GDP of USA. A positive or negative coefficient (different from zero) implies there is a relationship. This is verify for each country using each indicator. The last technique to verify causality relationship between effects of the crisis in USA, Europe and sub-Sahara Africa is multiple regression. A 7 year sample period with 20 countries and three regions (USA, Europe and Sub-Sahara Africa) permit this technique. This sample size is sound to use regression to verify how changes in selected indicators in USA and Europe during this period affected Sub-Sahara Africa.

$$\Delta(\text{GDPG})\text{SSA}_{2007-2012} = \alpha + \beta(\Delta\text{GDPG})\text{USA}_{2007-2012} + \varepsilon \quad \text{Eq1}$$

$$\Delta\left(\frac{\text{GDP}}{\text{Export}}\text{G}\right)\text{SSA}_{2007-2012} = \alpha + \beta\left(\frac{\Delta\text{GDP}}{\text{Export}}\text{G}\right)\text{USA}_{2007-2012} + \varepsilon \quad \text{Eq2}$$

$$\Delta(\text{Inflation G})\text{SSA}_{2007-2012} = \alpha + \beta(\Delta\text{Inflation G})\text{USA}_{2007-2012} + \varepsilon \quad \text{Eq3}$$

Where: $\Delta(\text{GDPG})\text{SSA}$ = changes in gross domestic product of Sub-Sahara Africa, $(\Delta\text{GDPG})\text{USA}$ = changes in gross domestic product of United State of America.

Same process is repeated but now using changes in these indicators in Europe as the independent variables while changes for Sub-Sahara Africa forms the dependent variable. A similar methodology but in the field of investment finance is the Sharp-Lintner-Mossin paradigm. They in their study find a relationship between market return and assets of

portfolio returns. They investigate how the asset or portfolio return is sensitive to fluctuations in the market. Embracing such a model, we picture USA economy or the European union more influential in terms of world's stability. And that fluctuation in USA, or European Union in terms of economic performance can create significant effects on individual economy or regions like the Sub-Sahara. However instead of using second pass regression as in the case of Fama and Macbeth a single regression is use.

3.1 Research Hypothesis

Effect of Financial crisis in USA or Europe does not have a significant positive effect on the performance of Sub-Sahara economies.

$H_0: \alpha = 0$ and $H_{02}: \beta = 0$.

The other research question will be review through narrative approach and supported with evidence from descriptive and regression findings. A bulk or review literature will assist us to bring out justifiable arguments supporting how the waves of financial crisis travel, how to predict possibility of a financial tumor, and how management and system can best adapt once such recession surface.

4. Data Analysis and Hypothesis Testing

Descriptive figures indicate that GDP growth remain positive in most economies except for some few cases like Zimbabwe (2006, 2007 and 2008), cote de Avoire (2011). However, to understand and depict the effects of the crisis in this study period change in GDP growth and not GDP growth is best to consider. Therefore from table two is derived from table 1. While table 1 present the data as per source, table analysis to review an evidence.

Table 1
Growth rate of GDP (2006-2012) for selected Sub-Sahara economies

Countries	2006	2007	2008	2009	2010	2011	2012
Cote de Avoire(GDP growth rate)	0.7	1.6	2.3	3.8	2.4	-4.7	9.8
Ghana(GDP growth rate)	6.1	6.5	8.4	4.0	3.4	14.0	9.3
Nigeria(GDP growth rate)	6.0	6.4	6.0	7.0	10.6	4.9	4.3
Senegal(GDP growth rate)	2.5	4.9	3.7	2.4	4.2	1.7	3.4
Cameroon(GDP growth rate)	3.2	3.3	2.9	1.9	3.3	4.1	4.6
Gabon(GDP growth rate)	1.2	4.8	5.3	-2.7	6.9	7.0	5.3
Equatorial Guinea(GDP growth rate)	1.3	13.1	12.3	-8.1	-1.3	5.0	3.2
Chad(GDP growth rate)	0.6	3.1	2.5	2.8	13.6	0.1	8.9
Kenya(GDP growth rate)	6.7	7.1	7.4	6.0	7.0	6.4	6.9
Tanzania(GDP growth rate)	6.7	7.1	7.4	6.0	7.0	6.4	6.9
Uganda(GDP growth rate)	7.0	8.1	10.4	4.1	6.2	6.4	3.6
Rwanda(GDP growth rate)	9.2	7.6	11.2	6.2	6.3	7.5	8.8
South Africa(GDP growth rate)	5.6	5.4	3.2	-1.5	3.0	3.2	2.2
Zimbabwe(GDP growth rate)	-3.5	-3.7	-17.7	5.3	11.4	11.9	10.6
Angola(GDP growth rate)	11.5	14.0	11.2	2.4	3.4	3.9	5.2
Zambia(GDP growth rate)	7.9	8.4	7.8	9.2	10.3	7.6	6.3
Mali(GDP growth rate)	5.3	4.3	5.0	4.5	5.8	2.7	0.0
C.A.R ¹ (GDP growth rate)	4.8	4.6	2.1	1.7	3.0	3.3	4.1
COD ² (GDP growth rate)	5.6	6.3	6.2	2.8	7.2	6.9	7.2
Madagascar(GDP growth rate)	5.4	6.5	7.2	-3.5	0.1	1.5	2.5

1 Central Africa republic

2 Congo Democratic

Majority sample countries witness negative growth rate in the mist of these chain of financial crisis. Five countries (25%) had negative GDP growth rate at start of the subprime crisis in 2007. At the apex of this crisis in 2008 the percentage rose to 60 percent. It fall in GDP growth rate became more severe between 2008 and 2009. Almost 75 percent of sample economies recorded negative growth. However the situation calm in 2009 to 2010 and 90% of sample recorded positive growth. The Europe debt (2010) and Greece sovereign debt crisis (2011) created again another instability. 50% sample size had negative growth rate of GDP after a brief recovery in 2010.

Table 2
Percent change in GDP growth rate

Countries	2007	2008	2009	2010	2011	2012
Cote de Avoire (GDP growth rate)	0.9	0.7	5.2	-1.4	-7.1	14.5
Ghana (GDP growth rate)	0.4	1.9	-4.4	-0.6	10.6	-4.7
Nigeria (GDP growth rate)	0.4	-0.4	1	3.6	-5.7	-0.6
Senega (GDP growt rate)	2.4	-1.2	-1.3	1.8	-2.5	1.7
Cameroon (GDP growth rate)	0.1	-0.4	-1	1.4	0.8	0.5
Gabon (GDP growth rate)	3.6	0.5	-8	9.6	0.1	-1.7
Equitoria Guinea (GDP growth rate)	11.8	-0.8	-20.4	6.8	6.3	-1.8
Chad (GDP growth rate)	2.5	-0.6	0.3	10.8	-13.5	8.8
Kenya (GDP growth rate)	0.4	0.3	-1.4	1	-0.6	0.5
Tanzania (GDP growth rate)	0.4	0.3	-1.4	1	-0.6	0.5
Uganda (GDP growth rate)	1.1	2.3	-6.3	2.1	0.2	-2.8
Rwanda (GDP growth rate)	-1.6	3.6	-5	0.1	1.2	1.3
South Africa (GDP growth rate)	-0.2	-2.2	-4.7	4.5	0.2	-1
Zimbabwe (GDP growth rate)	-0.2	-14	23	6.1	0.5	-1.3
Angola (GDP growth rate)	2.5	-2.8	-8.8	1	0.5	1.3
Zambia (GDP growth rate)	0.5	-0.6	1.4	1.1	-2.7	-1.3
Mali (GDP growth rate)	-1	0.7	-0.5	1.3	-3.1	-2.7
C.A.R (GDP growth rate)	-0.2	-2.5	-0.4	1.3	0.3	0.8
COD (GDP growth rate)	0.7	-0.1	-3.4	4.4	-0.3	0.3
Madagascar (GDP growth rate)	1.1	0.7	-10.7	3.6	1.4	1
Out of 20	5	12	15	2	10	9
% -	25.0	60.0	75.0	10.0	50.0	45.0
% +	75	40	25	90	50	55

%- implies percentage of the sample that recorded negative growth rate of GDP

%+ implies percentage of the sample that recorded POSITIVE growth rate of GDP

A similar approach to review of above variable is done similar to export/GDP ratio and for inflation ratio.

Table3

Export/ GDP ratio (2006-2012) for selected Sub-Sahara economies

Countries	2006	2007	2008	2009	2010	2011	2012
COTE DE AVOIRE(Export/GDP)%	52.4	47.2	47.1	50.9	50.6	53.8	48.5
Ghana(Export/GDP)%	40.7	40.8	44.5	42.3	45.9	49.4	52.8
Nigeria(Export/GDP)%	43.1	33.7	39.9	30.8	25.3	31.3	31.4
Senegal(Export/GDP)%	25.6	25.4	26.1	24.3	24.9	25.2	24.3
Cameroon(Export/GDP)%	23	23.9	24.1	16	17.3	18.4	18.8
Gabon(Export/GDP)%	28.2	26.6	26.8	30.7	31.5	28.8	31.4
Equatorial Guinea(Export/GDP)%	93.8	106.6	92.2	97.4	94.6	93.4	96.6
Chad(Export/GDP)%	27.9	34.7	48.3	35.1	36.8	38.9	35.5
Kenya(Export/GDP)%	32.3	32	34.9	30.8	33.6	38.8	35.4
Tanzania(Export/GDP)%	17.1	18.9	18.6	17.4	18.7	20.8	21.3
Uganda(Export/GDP)%	15.3	16.7	24.3	19.8	17.1	18.9	20.1
Rwanda(Export/GDP)%	12.3	15.9	12.7	11.9	12.1	14.4	14.1
South Africa(Export/GDP)%	29.3	31.2	35.6	27.9	28.6	30.4	29.7
Zimbabwe(Export/GDP)%	36	37.8	41.5	22	36.8	42.8	32.9
Angola(Export/GDP)%	63.5	67.8	72.5	63.7	61.9	61.2	59.1
Zambia(Export/GDP)%	32.6	33.6	28.9	29.3	37	38.1	42.1
Mali(Export/GDP)%	29.9	29.1	22.9	21.6	21.7	25	26.7
C.A.R(Export/GDP)%	14.3	14.4	13.4	10.7	11.8	13.5	12.5
COD(Export/GDP)%	25.3	46.7	46.1	36.9	48.4	49.6	39.5
Madagascar(Export/GDP)%	45.8	52.1	56.9	41.6	43	42.3	44

Yearly changes of Export/ GDP ratio in table 4 below equally present another dimension to illustrate the effects crisis on continent Africa.

Table4
Yearly changes (Export/ GDP ratio, 2006-2012) for selected Sub-Sahara economies

Countries	2007	2008	2009	2010	2011	2012
COTE DE AVOIRE(Export/GDP)%	-5.2	-0.1	3.8	-0.3	3.2	-5.3
Ghana(Export/GDP)%	0.1	3.7	-2.2	3.6	3.5	3.4
Nigeria(Export/GDP)%	-9.4	6.2	-9.1	-5.5	6	0.1
Senegal(Export/GDP)%	-0.2	0.7	-1.8	0.6	0.3	-0.9
Cameroon(Export/GDP)%	0.9	0.2	-8.1	1.3	1.1	0.4
Gabon(Export/GDP)%	-1.6	0.2	3.9	0.8	-2.7	2.6
Equatorial Guinea(Export/GDP)%	12.8	-14.4	5.2	-2.8	-1.2	3.2
Chad(Export/GDP)%	6.8	13.6	-13.2	1.7	2.1	-3.4
Kenya(Export/GDP)%	-0.3	2.9	-4.1	2.8	5.2	-3.4
Tanzania(Export/GDP)%	1.8	-0.3	-1.2	1.3	2.1	0.5
Uganda(Export/GDP)%	1.4	7.6	-4.5	-2.7	1.8	1.2
Rwanda(Export/GDP)%	3.6	-3.2	-0.8	0.2	2.3	-0.3
South Africa(Export/GDP)%	1.9	4.4	-7.7	0.7	1.8	-0.7
Zimbabwe(Export/GDP)%	1.8	3.7	-19.5	14.8	6	-9.9
Angola(Export/GDP)%	4.3	4.7	-8.8	-1.8	-0.7	-2.1
Zambia(Export/GDP)%	1	-4.7	0.4	7.7	1.1	4
Mali(Export/GDP)%	-0.8	-6.2	-1.3	0.1	3.3	1.7
C.A.R(Export/GDP)%	0.1	-1	-2.7	1.1	1.7	-1
COD(Export/GDP)%	21.4	-0.6	-9.2	11.5	1.2	-10.1
Madagascar(Export/GDP)%	6.3	4.8	-15.3	1.4	-0.7	1.7
out of 20(number turn negative)	6	8	16	5	5	10
% -	30	40	80	25	25	50
% +	70	60	20	75	75	50

The contribution of export to GDP for our sample was most negative for the period 2008-2009. 80% of sample witness a negative growth rate during this apex year of subprime crisis. However the situation reverse in 2009-2010 as 75% recorded a positive growth of export/GDP. The effect of the European debt crisis only set in 2011-2012. Half of sample witness a fall in growth of export to GDP ratio (2011-2012).

Table 5
Inflation figures (2006-2012) for selected Sub-Sahara economies

Countries	2006	2007	2008	2009	2010	2011	2012
COTE DE AVOIRE(inflation)	1.7	2.9	8.5	2.3	5.4	1.6	4.1
Ghana(inflation)	80.8	18.6	19.4	15.7	16.6	13.9	15.2
Nigeria(inflation)	17.3	4.8	10.8	-4.3	103.8	9.5	9.3
Senegal(inflation)	40	5.3	8.6	-9.6	6.4	8.6	1.1
Cameroon(inflation)	3.9	1	3.7	3.7	2.6	3	3
Gabon(inflation)	10.4	5.4	20.1	-16.4	13.6	12.7	-2.9
Equatorial Guinea(inflation)	2.4	-3.8	26.4	-29.5	35.6	26.7	4.1
Chad(inflation)	10	3.3	8.6	-9.6	6.4	8.6	1.1
Kenya(inflation)	23.5	8.1	15.2	11.6	2.1	10.8	9.4
Tanzania(inflation)	16.5	5.9	15.9	9.3	9.2	11.5	10.7
Uganda(inflation)	2.4	7.3	6.4	31.3	12.8	4.8	20.9
Rwanda(inflation)	9.1	11.8	14.3	8.2	2.6	7.3	6
South Africa(inflation)	6.3	8.8	8.8	7.5	6.4	5.5	6
Zimbabwe(inflation)	-2	0.9	1.3	74.3	3.7	3.9	2.3
Angola(inflation)	/	/	/	/	/	/	/
Zambia(inflation)	14.5	13	10.6	5.6	14	11.6	4.3
Mali(inflation)	5.1	2.6	8.8	3.6	2.4	6.6	5
C.A.R(inflation)	3.5	1.9	7	3.5	2	2	2.7
COD(inflation)	12.1	18.9	19.6	33.9	17.4	10.4	7.5
Madagascar(inflation)	11.5	9.6	9.1	8.4	8.8	8.2	5.5

World Bank data base did not record inflation values of Gabon in the sample period (sample for inflation variable turn 19). It is noted that financial crisis result to increase in inflation rate.

Table 6
Yearly changes in inflation rate for selected Sub-Sahara economies

Countries	2007	2008	2009	2010	2011	2012
Cote de Avoire(inflation)	1.2	5.6	-6.2	3.1	-3.8	2.5
Ghana(inflation)	-62.2	0.8	-3.7	0.9	-2.7	1.3
Nigeria(inflation)	-12.5	6	-15.1	108.1	-94.3	-0.2
Senegal(inflation)	-34.7	3.3	-18.2	16	2.2	-7.5
Cameroon(inflation)	-2.9	2.7	0	-1.1	0.4	0
Gabon(inflation)	-5	14.7	-36.5	30	-0.9	-15.6
Equatorial						
Guinea(inflation)	-6.2	30.2	-55.9	65.1	-8.9	-22.6
Chad(inflation)	-6.2	30.2	-55.9	65.1	-8.9	-22.6
Kenya(inflation)	-15.4	7.1	-3.6	-9.5	8.7	-1.4
Tanzania(inflation)	-10.6	10	-6.6	-0.1	2.3	-0.8
Uganda(inflation)	4.9	-0.9	24.9	-18.5	-8	16.1
Rwanda(inflation)	2.7	2.5	-6.1	-5.6	4.7	-1.3
South Africa(inflation)	2.5	0	-1.3	-1.1	-0.9	0.5
Zimbabwe(inflation)	2.9	0.4	73	-70.6	0.2	-1.6
Angola(inflation)	/	/	/	/	/	/
Zambia(inflation)	-1.5	-2.4	-5	8.4	-2.4	-7.3
Mali(inflation)	-2.5	6.2	-5.2	-1.2	4.2	-1.6
C.A.R(inflation)	-1.6	5.1	-3.5	-1.5	0	0.7
COD(inflation)	6.8	0.7	14.3	-16.5	-7	-2.9
Madagascar(inflation)	-1.9	-0.5	-0.7	0.4	-0.6	-2.7
out of 19 (number						
positive)	6	17	2	10	8	5
%+	31.6	89.5	10.5	52.6	42.1	26.3
%-	68.4	10.5	89.5	47.8	57.9	73.7

Averagely inflation growth rate was highest in 2008 and second in 2010. 89.5% of sample noticed increase in inflation in 2008 and in 52.6% in 2010.

Table 7 reviews the extent to which changes in growth rate of GDP (GDP G) Export/GDP and inflation (infl) in USA and Europe affects sub-Sahara economies (correlation).

Table 7
Correlation coefficient (indicator`s Sensitivity)

Countries	USA(GDP G)	Europe(GDP G)	USA Export/GDP	Europe Export/GDP	USA Infl	Europe Infl
COTE DE						
AVOIR(correl)	-0.051144361	-0.413757207	-0.218083677	-0.289628642	0.012702	0.206366978
Ghana(correl)	-0.114516637	0.200200994	0.776214627	0.869953148	0.370716	-0.133705194
Nigeria(correl)	0.496210705	0.360801747	0.452962221	0.435793696	-0.07187	-0.580749279
Senegal(correl)	0.566768487	0.456861348	0.958513815	0.819873917	0.686057	0.118042366
Cameroon(correl)	0.846326981	0.86972682	0.921205973	0.930649985	0.049797	0.212828195
Gabon(correl)	0.78839124	0.934210609	-0.78694563	-0.603626177	0.532952	0.331474328
Equatoria Guinea(correl)	0.439454434	0.665973327	-0.377087803	-0.300491164	0.45104	0.18556851
Chad(correl)	0.603731412	0.355348604	0.810837761	0.57499663	0.45104	0.18556851
Kenya(correl)	0.698271838	0.688787643	0.859665431	0.714470336	0.356513	0.508558343
Tanzania(correl)	0.698271838	0.688787643	0.756460853	0.772680312	0.380237	0.427826629
Uganda(correl)	0.389000562	0.646813265	0.506226831	0.314518309	-0.74376	-0.440491108
Rwanda(correl)	0.159045578	0.219978659	0.234537034	0.240884781	0.248935	0.951413451
South Africa(correl)	0.903367959	0.980692641	0.904894135	0.758112218	-0.37814	0.29177291
Zimbabwe(correl)	0.023093537	-0.107137087	0.961054635	0.87785981	-0.63663	-0.241476069
Angola(correl)	0.517071436	0.607007393	0.747324217	0.523536098	/	/
Zambia(correl)	0.202899881	0.145083595	0.13469972	0.434768399	0.430095	-0.118021023
Mali(correl)	0.321097001	0.374253758	0.042891597	0.313459252	0.452813	0.791901001
C.A.R(correl)	0.715988023	0.568663911	0.871068939	0.883212283	0.0857	0.568977648
COD(correl)	0.896540568	0.942693265	0.618954425	0.433978276	-0.857	-0.306074046
Madagascar(correl)	0.583338207	0.697463118	0.825283793	0.743216596	0.341423	-0.128116956
sub-sahara Africa(correl)	0.825284	0.743216	0.645889	0.3830983	0.586189	0.761404771

Even though some few economy records negative sensitivity but the overall effect (Sub-Sahara Africa combine) is positive for all studied indicators. This implies decrease in growth rate of GDP, export in USA or Europe resulting from financial system crash will equally leads to decrease in same indicators in Sub-Sahara Africa. And as inflation rises in USA or Europe as a result of financial tumor, African economy will suffer a similar effect. However care should be taken to check the case of specific economy. This because some countries have negative responds to such movements.

4.1. Regression Result, Test of Hypothesis and Respond to Research Questions

$$1. \Delta(GDPG)SSA_{2007-2012} = 0.012 + 0.13(\Delta GDPG)USA$$

$$(t = 0.216, R^2 = 1.7\%)$$

$$2. \Delta(GDPG)SSA_{2007-2012} = -0.1 + 0.38(\Delta GDPG)EU_{2007-2012}$$

$$(t = 0.816, R^2 = 14.3\%)$$

$$3. \Delta\left(\frac{GDP}{Export} G\right)SSA_{2007-2012} = -0.248 + 0.29\left(\frac{\Delta GDP}{Export} G\right)USA_{2007-2012}$$

$$(t = 0.594, R^2 = 8.1\%)$$

$$4. \Delta\left(\frac{GDP}{Export} G\right)SSA_{2007-2012} = 1.093 + 0.53\left(\frac{\Delta GDP}{Export} G\right)EU_{2007-2012}$$

$$(t = 1.255, R^2 = 28.1\%)$$

$$5. \Delta(Inflation G)SSA_{2007-2012} = 2.383 + 0.586(\Delta Inflation G)USA_{2007-2012}$$

$$(t = 0.221, R^2 = 18.0\%)$$

$$6. \Delta(Inflation G)SSA_{2007-2012} = 3.118 + 0.761(\Delta Inflation G)EU_{2007-2012}$$

$$(t = 2.349, R^2 = 47.5\%)$$

We found statistical sensitivity of performance of Sub- Sahara economies resulting from economic failures in European Union and USA. As recessions or financial crisis take effects in these major trade areas, it is very easy for waves to be transmitted to Africa. The three studied indicators all show a positive relationship in effects on Sub-Sahara as changes takes place in these two areas (USA AND EU). However the findings shows that the effect is stronger with EU than USA. The coefficient of determination (R^2) per each indicator recorded a higher value for EU than USA. For example changes in inflation indicator has an explanatory power of 47.5% for EU and 18% for USA. This implies African countries are more affected by effects from their colonial master compare to USA. This could equally be back by the nearness of Africa to EU compare to USA. This geographical proximity may have allowed more economic links and trading between EU and Africa. In effect, the result of

regression found statistical evidence to reject the null hypothesis. That is the effects on Sub-Sahara Africa is different from Zero. We recorded drop of GDP growth rate, fallen export/GDP ratio (clear indication of fall in export) and risen inflation. We could as well study many other indicators, however were limited to three indicators because of limited data. The core opening or channel of crisis noticed at the level of this study and other literature is the role of international trade. We noticed a high level of falling exports which drop the export/GDP ratio value in this period of these crisis. Other opening even though not statistically investigated are falling foreign direct investment (FBI), unflavored (weaken) exchange rates, limited transfer in banking service and unemployment. Most African economies depend on exports of natural resources and agricultural product. For example timber, cocoa, rubber, banana, crude oil and petroleum, goal, bauxite and diamond. In this regards unflavored exchange rates like the current fall in crude oil prices can cause a weaken economy. United nation (2011b) confirmed a drastic fall in global output in 2008. This source justified this to falling in the importation of developed economies. Which implies a fall in the exportation by developing countries (Sub-Sahara Africa inclusive).

There is a record that it takes an average of 6 to 8 years for each business cycle. And the first sign for general economic downturn is recession. After a slump or deep financial crisis, recovery is possible if restructuring, fiscal and monetary policies are implemented professionally. It will take an average of 6- 8 years for this recovery to take the economy to a boom. And any slight decline after this boom should be view by both management and governments as a sign of a financial crisis. If this signs turn severe it can drives an economy deep to the extent of great depression and/or subprime crisis. This analysis is consider true because 7 years after the deep tumor in 2008, the world last year equally suffered from a severe oil price decline and currency depreciation. This affected most oil dependent economy like Russia, Nigeria and many others. Also 7 years later after Dot-com bubble stroke the globe in early 2000s, surface the subprime crisis. Our indicators clear confirm a gradual decline of export, GDP growth rate and gradual rise in inflation from 2006 to 2007. Confirming on an average per economy a recession that follows world's stability between 2000 and 2006. Therefore an economic boom itself is a good base to guide forecast of a financial/ economic crisis.

5. Conclusion and Research Guides

It is very certain and evidence in this study that financial crisis wave's transition is possible. In our today's world of almost perfect globalizations strategies in all domains/discipline, pains in one section is most likely to affects another. The march-April 2016 nuclear energy summit clear admitted in leader's speeches that "any pains on one country due to nuclear threat is pains to the whole globe". In a similar analogy economic stagnation resulting from financial malfunctioning of one country will affects not only this economy but the globe. The effect is more severe when this malfunction stem from mother economies like the United States of America, European Union and today uprising communist world of People Republic of China. Geographical proximity and close trade relation are some of the factors that determine the degree to which an economy will suffer from such tumors.

It is necessary for governments and firms to be able to predict with accuracy possible slump resulting from world's financial instability. This helps government to quick revise and/or reverse their monetary and fiscal policies to fits the situation. Both expansionary monetary and fiscal policies can quickly turn and economy going into a deep hollow to achieve sudden recovery. Such policies are studies and implemented by experts in resolving financial crisis. Therefore government of Sub-Sahara Africa should be able to train and maintain financial crisis expert that can help detect and institute reverse policies to combat economic downturn. Equally sudden crash can really affects the operational management of firms. Pile of inventory may rise and increase warehousing cost. Some products expired and wasted because general fall in demand. In effect the operational or cash conventional cycle will be longer than expected, hence inefficient working capital management. Though systematic risk, ability to forecast financial crisis will help firms to limit it overall negative effects. This is realized through a corresponding cut of production to match deteriorating demand conditions in the economy. Therefore firm should consider general economic downturn a major concern in their risk management department. There should have train personal who are able to forecast crisis and developed strategies to mitigate if not all, parts of its overall impact.

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